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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/544,210	08/02/2005	Yasufumi Takahashi	MAM-068	8490

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KUBOVCIK & KUBOVCIK
SUITE 1105
1215 SOUTH CLARK STREET
ARLINGTON, VA 22202

EXAMINER	
ARCIERO, ADAM A	

ART UNIT	PAPER NUMBER
1795	

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07/20/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/544,210	TAKAHASHI ET AL.	
	Examiner	Art Unit	
	ADAM A. ARCIERO	1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *19-29* is/are pending in the application.

4a) Of the above claim(s) *26-29* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *19-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *02 August 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *08/02/2005; 12/02/2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

NONAQUEOUS ELECTROLYTE SECONDARY BATTER

Examiner: Adam Arciero S.N. 10/544,210 Art Unit: 1795 July 13, 2009

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 19-25, in the reply filed on April 20, 2009 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 19-21 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over BIENSAN et al. (US 6,071,645).

As to Claims 19-20, BIENSAN et al. discloses a nonaqueous electrolyte secondary battery having a cathode, anode and an electrolyte, wherein said cathode and anode comprise their respective active materials (col. 2, lines 65-68). BIENSAN et al. discloses a positive active material comprising a lithium cobaltate in which both Zr and Mg are contained wherein the amount of said Zr and Mg are not greater than 3 mole %, based on the total amount of the aforementioned elements and cobalt present in the lithium cobaltate (col. 1, lines 35-62 and col. 2, lines 1-14). Furthermore, it is noted that claim 1 is a product-by-process claim. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe*, 777 F.2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Since BIENSAN et al.'s battery is similar to that of the Applicant's, Applicant's process is not given patentable weight. BIENSAN et al. does not specifically disclose wherein a Zr-containing compound exists in the form of particles sintered with particle surfaces of the lithium cobaltate; and Zr is detected in the particles of the Zr-containing compound but not detected in the lithium cobaltate particles. However, it is the position of the Examiner that such properties of the active material are inherent, given that the materials and method for producing (sintering and mixing)

disclosed by BIENSAN et al. and the present application have the same composition and steps. A reference which is silent about a claimed invention's features is inherently anticipatory of the missing feature is necessarily present in that which is described in the reference. Inherency is not established by probabilities or possibilities. *In re Robertson*, 49 USPQ2d 1949 (1999). Applicant is advised to submit other information with respect to DANSUI et al. positive active material, if it is shown to be patentably distinct from the instant invention.

Alternatively, it would have been obvious to one of ordinary skill in the art to mix and heat-treat the materials because BIENSAN et al. teaches that an electrochemically active material with a high initial capacity per unit mass having stability during cycling can be achieved (col. 1, lines 30-34).

As to Claim 21, BIENSAN et al. discloses wherein said materials are contained in substantially equimolar amounts (col. 2, lines 34-45).

6. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over BIENSAN et al. (US 6,071,645) as applied to claims 19-22 above, and further in view of MIYASAKA (US 5,478,674 A).

As to Claim 22, BIENSAN et al. does not specifically disclose the specific surface area of the positive active material as being not greater than 1.0 m^2/g.

However, MIYASAKA teaches of a nonaqueous electrolyte secondary battery (Title) wherein the specific surface area of the active material in the positive electrode is greater than 0.1 m^2/g – 3 m^2/g (col. 4, lines 18-21). This range overlaps the claimed range of not greater than 1.0 m^2/g. The courts have held that a *prima facie* case of obviousness exists whereint eh calimed

ranges "overlap or lie inside ranges disclosed by the prior art. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976).

7. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over BIENSAN et al. (US 6,071,645) as applied to claims 19-21 above, and further in view of IWASAKI et al. (JP 09-293536).

As to Claim 23, BIENSAN et al. does not specifically disclose a ratio in charge capacity of the anode to the cathode as being 1.0-1.2.

However, IWASAKI et al. teaches of a nonaqueous electrolyte secondary battery (paragraph [0001]) which has a reversible capacity ratio of the negative electrode to the positive electrode as being $1.05 \leq x \leq 1.30$ (Abstract). This range overlaps the claimed range of 1.0 - 1.20. At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the capacity ratios of the negative electrode to the positive electrode to fall within the range of 1.05 to 1.30, because IWASAKI et al. teaches that heat generation and rupture are reduced and good cycle characteristics are obtained (Abstract).

8. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over BIENSAN et al. (US 6,071,645) as applied to claims 19-21 above, and further in view of TANAKA (US 5,487,960).

As to Claim 24, BIENSAN et al. teaches of a solvent mixture for the electrolyte as being a mixture of linear carbonates and cyclic carbonates such as propylene carbonate and dimethyl

carbonate (col. 3, lines 14-20). BIENSAN et al. does not specifically teach the volume percentage of said cyclic carbonate as being 10-30%.

However, TANAKA teaches of a nonaqueous electrolyte secondary battery (Title) wherein the electrolyte comprises a solvent mixture of ethylene carbonate (EC) and diethyl carbonate (DEC), wherein the cyclic carbonate (EC) is present in 25% of the volume of the total solvent mixture (pg. 6, Table 11, battery No. 073). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the electrolyte solution of BIENSAN et al. so as to comprise ethylene carbonate in a volume content of 25% of the total volume of the solvents, because TANAKA teaches that the safety of the batteries can be enhanced with proper choice of the electrolytic solution.

9. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over BIENSAN et al. (US 6,071,645) as applied to claims 19-21 above, and further in view of HIRONAKA et al. (US 2001/0031391 A1).

As to Claim 25, BIENSAN et al. does not specifically disclose wherein the positive electrode comprises a carbon material in the amount of less than 5 wt%.

However, HIRONAKA et al. teaches of a nonaqueous electrolyte secondary battery having a positive electrode with a positive active material. Said electrode further comprises a carbon material, a binder and a conductor, wherein the carbon material does not exceed 2 wt% of the total positive electrode materials (pg. 5, Table 3). At the time of the invention, it would have been obvious to one of ordinary skill in the art to modify the electrode of BIENSAN et al. so as to comprise a carbon material of less than 5 wt % of the total electrode materials, because

HIRONAKA et al. teaches that the cycle life and power characteristics of the battery can be improved.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ADAM A. ARCIERO whose telephone number is (571)270-5116. The examiner can normally be reached on Monday to Friday 8am to 5pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dah-Wei Yuan can be reached on 571-272-1295. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AA

/Dah-Wei D. Yuan/
Supervisory Patent Examiner, Art Unit 1795